

REMARKS

Claims 61-82 are pending. Claim 61 is amended, claim 68 is canceled, and claim 83 is added. No new matter is added by these amendments, support therefore being found throughout the application as filed (e.g. see page 5, lines 14-20).

Applicants note that the listing of claims contained two claim 68's and, thus, Applicants cancel herein the first claim 68 and add new claim 83 directed to the first claim 68.

1. 35 U.S.C. §103 REJECTIONS

Motamedi, Swanson, and Altman

Claims 61-63 and 78-81 are rejected under 35 U.S.C. §103(a) over Motamedi et al. [USP 6,143,019; "Motamedi"], Swanson [USP 6,023,638; "Swanson"], and Altman [USP 6,577,895; "Altman"].

Applicants' amended independent claim 61 provides a non-thermal method for treating and/or curing cardiac arrhythmias. Applicants' method comprises administering a photosensitizing agent to at least one pulmonary vein; inserting an illumination device into the at least one pulmonary vein ostia before, during, or after administration of the photosensitizing agent; and during and/or after the photosensitizing agent is administered, using the illumination device to deliver illumination at a discrete point, in a linear pattern, or in an annular shaped pattern, so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Applicants respectfully submit that Motamedi, Swanson, and Altman at least fail to teach or suggest a non-thermal method for treating and/or curing cardiac arrhythmias by administering a photosensitizing agent to at least one pulmonary vein, inserting an illumination device into the at least one pulmonary vein ostia and during and/or after the photosensitizing agent is administered, using the illumination device to deliver illumination at a discrete point, in a linear pattern, or in an annular shaped pattern so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Motamedi describes a catheter having a fiber optic tip designed to diffuse ablating energy over a broad area in the myocardium (see col. 2, lines 39-43) thereby heating larger volumes of tissue than is possibly with current endocardial treatments (see col. 7, lines 13-14).

However, nowhere is Motamedi is it taught or suggested that the ablating energy is delivered at a discrete point, in a linear pattern, or in an annular shaped pattern. Rather, Motamedi stresses that the ablating energy is diffused over a broad area so as to heat larger volumes of tissues than previously possible.

Further, there is no teaching or suggestion to modify Motamedi so as to deliver ablating energy is delivered at a discrete point, in a linear pattern, or in an annular shaped pattern. Rather, such a modification of Motamedi would render the device of Motamedi “unsuitable for its intended purpose” and would result in “a change in the basic principle under which [Motamedi] was designed to operate” (see MPEP 2143.01). In particular, Motamedi provides a catheter specifically adapted for diffusing ablation energy over a broad area in the myocardium so as to heat larger volumes of tissue than is possibly with current endocardial treatments. Modifying Motamedi’s device so as to deliver ablating energy is delivered at a discrete point, in a linear pattern, or in an annular shaped pattern would prevent the diffusion of ablation energy over a broad area.

Swanson does not remedy the deficiencies in Motamedi. Swanson describes systems and methods for applying RF energy to temporarily stun a zone of tissue rendering it electrically unresponsive and to modify tissue.

However, Swanson is not at all directed to photodynamic therapy or to a method for treating and/or curing cardiac arrhythmias by ablating a section of the pulmonary vein to electrically isolate the pulmonary vein from the left atrium. Further, even if Swanson and Motamedi were combined, all Swanson adds to Motamedi is that RF energy can be used to temporarily stun tissue and, if preestablished criteria are met (the desired therapeutic effect would be created), to ablate the tissue using RF energy.

Altman further does not remedy the deficiencies in Motamedi and Swanson. Altman describes a diagnostic catheter that is used to inject fluid into the pulmonary vein. The fluid disrupts electrical impulses of heart tissue and allows a physician to determine whether the atrial fibrillation has stopped, thereby confirming whether ablation of the pulmonary vein would stop the atrial fibrillation.

Altman does not teach or suggest a non-thermal method for treating and/or curing cardiac arrhythmias by administering a photosensitizing agent to at least one pulmonary vein and using an illumination device to deliver illumination at a discrete point, in a linear pattern, or in an annular shaped pattern so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Thus, Applicants respectfully submit that Motamedi, Swanson, and Altman do not teach or suggest all the claim limitations. Further, there is no suggestion or motivation to modify and combine the references as proposed by the Office absent impermissible hindsight reasoning.

Accordingly, Applicants respectfully submit that claim 61 is patentable over Motamedi, Swanson, and Altman. Claims 62-63 and 78-81 depend from claim 61 and, likewise, are patentable over Motamedi, Swanson, and Altman. Reconsideration and withdrawal of the rejection is respectfully requested.

Motamedi, Swanson, Altman, and Leone

Claims 64-77 are rejected under 35 U.S.C. §103(a) in view of Motamedi, Swanson, Altman, and Leone. Applicants respectfully traverse.

As set forth above, Motamedi, Swanson, and Altman fail to teach or suggest a non-thermal method for treating and/or curing cardiac arrhythmias by administering a photosensitizing agent to at least one pulmonary vein and using an illumination device to deliver illumination at a discrete point, in a linear pattern, or in an annular shaped pattern so as to

activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Leone does not remedy these deficiencies. Leone describes a photodynamic balloon catheter that diffuses illumination uniformly over the working area 29 of the balloon.

Applicants respectfully submit that Motamedi, Swanson, Altman, and Leone do not teach or suggest all the claim limitations. Further, there is no suggestion or motivation to modify and combine the references absent impermissible hindsight reasoning.

Accordingly, Applicants respectfully submit that claim 61 is patentable over Motamedi, Swanson, and Altman. Claims 64-77 depend from claim 61 and, likewise, are patentable over Motamedi, Swanson, Altman, and Leone. Reconsideration and withdrawal of the rejection is respectfully requested.

Motamedi, Swanson, Altman, and Rice

Claim 82 is rejected under 35 U.S.C. §103(a) in view of Motamedi, Swanson, Altman, and Rice. Applicants respectfully traverse.

As set forth above, Motamedi, Swanson, and Altman fail to teach or suggest a non-thermal method for treating and/or curing cardiac arrhythmias by administering a photosensitizing agent to at least one pulmonary vein and using an illumination device to deliver illumination at a discrete point, in a linear pattern, or in an annular shaped pattern so as to activate the photosensitizing agent in the pulmonary vein, thereby ablating a section of the pulmonary vein and electrically isolating the pulmonary vein from the left atrium.

Rice does not remedy these deficiencies. Rice describes a laser system for irradiating tumor cells in the presence of a photosensitizer compound. The laser system is adapted to cover the entire photoherapeutic spectral region (generally 500-1600nm).

Applicants respectfully submit that Motamedi, Swanson, Altman, and Rice do not teach or suggest all the claim limitations. Further, there is no suggestion or motivation to modify and combine the references absent impermissible hindsight reasoning.

Accordingly, Applicants respectfully submit that claim 61 is patentable over Motamedi, Swanson, Altman, and Rice. Claim 82 depends from claim 61 and, likewise, is patentable over Motamedi, Swanson, Altman, and Rice. Reconsideration and withdrawal of the rejection is respectfully requested.

2. Double Patenting

Claims 61-82 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 6-17, 19-26, 28-45, 47, 49, 51, 53-55, and 57 of U.S.S.N. 09/796,571.

A terminal disclaimer with respect to U.S.S.N. 09/796,571 is filed herewith. Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicant respectfully requests early consideration and allowance of the subject application.

Applicants believe that additional fees are not required in connection with the consideration of the within matter. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorney would appreciate the opportunity to do so.

Lardo et al.
U.S.S.N. 09/904,182
Page 11 of 11

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